September 8, 2004

TO: MEQB Members and
Technical Representatives

FROM: Larry B. Hartman
(651-296-5089)
Energy Facility Permitting

RE: Decision on Site Permit for G. McNeilus Wind, LLC for a 16.5 to 18.2-Megawatt Large Wind Energy Conversion System in Dodge County, Minnesota (EQB Docket No. 04-83-LWECS-GMW

Action: The Board is asked to issue a site permit to G. McNeilus Wind, LLC (GMW) for a 16.2 to 18.2-Megawatt Large Wind Energy Conversion System (LWECS) in Dodge County, Minnesota.

Background: GMW submitted an application to the EQB for a site permit to construct, operate, maintain, and manage a 16.5 to 18.2-Megawatt (MW) nameplate capacity Large Wind Energy Conversion System and associated facilities in Dodge County, Minnesota.

Garwin McNeilus of Dodge Center, Minnesota has formed a general purpose limited liability company called G. McNeilus Wind, LLC that will own and operate the proposed project. GMW is a wind energy development company based in Dodge Center, Minnesota. Mr. McNeilus also owns other limited liability companies that operate other wind turbines within the same site permit boundary as the proposed turbines.

The Project: The proposed GMW Project will consist of up to 11 wind turbines. The turbines will be either the NEG Micon MN72C 1.5 Megawatt or NM82 1.65 Megawatt wind turbine generators. The total nameplate capacity of the Project is 16.5 to 18.2 MW, depending on the selected turbine rating. The wind turbine generators will be mounted on freestanding tubular towers. The towers will be 70 to 80 meters high (230 to 262 feet) at hub height. The blade length is 35 to 40 meters (114 to 131 feet) and the rotor diameter is 72 to 82 meters (236 to 269 feet). The total height is 105 to 120 meters (345 to 394 feet). Other components of the project include a concrete and steel foundation for each tower, pad-mounted step-up transformers, all-weather class 5 roads of gravel or similar material, and an underground electric energy collection system. These turbines will be tied into an existing overhead 34.5 kV feeder system that delivers power to the GMLLC Substation located in Dodge Center approximately five miles north of the proposed Project.

GMW is negotiating a power purchase agreement with Xcel Energy to supply electricity generated by the project.

Map of Project Boundary: Attached to this memorandum are a map (Figure 1) and air photo (Figure 1a) showing the proposed site permit boundary for this project, the anticipated locations for the 11 turbines, and the 41 turbines already installed within the project boundary.

Procedural Requirements: The site permit application has been reviewed pursuant to the requirements of Minnesota Rules Chapter 4401 (Wind Siting Rules). A list of procedural documents establishing compliance with the requirements of chapter 4401 has been prepared and these documents are referenced in the proposed Findings of Fact. The staff can make any of these documents available to a Board member upon request, and copies will be available at the Board meeting.

The rules provide opportunities for the public to participate in deliberations on LWECS permit applications. The public was advised of the submission of the permit application after the application was received, a draft site permit on the project was provided for the public and the applicant to review, the public was afforded a period of time to submit written comments, and a public meeting was held in the Ashland Town Hall, south of Dodge Center in Dodge County, on August 12, 2004. About 25 people showed up at the public meeting, and EQB staff and representatives of GMW were available to answer questions.

Two agencies (the Minnesota Department of Natural Resources and the Minnesota Historical Society) submitted written comments on the project. The DNR requested a 180-meter setback from any grassland nesting areas or any wetlands and the applicant has agreed to do that. The DNR staff letter supports issuing a site permit for the project. The MHS letter noted that any involvement by a federal agency or a Section 106 review (a Federal review process designed to ensure that historic preservation properties are considered during Federal project planning and execution) would require the applicant to address the issue of potential effects on National Register properties. The MHS letter also noted that an archaeological survey for this area is not needed.

One individual, Jerry Berg, commented at the EQB public information and submitted a written comment, expressing concern about the proximity of the proposed and existing turbines (approximately 8,000 feet) to the Dodge Center Municipal Airport and the effects of turbine induced wakes and turbulence on small aircraft that use the airport.

The existing turbines comply with Federal Aviation Administration requirements for navigable airspace around the Dodge Center airport and lighting requirements. GMW is proposing to relocate three of the proposed eleven turbines to comply with the FAA navigable airspace requirements.

With respect to concerns about the effects of turbine induced wake and turbulence on small aircraft, the EQB staff consulted with two professional wind meteorologists, the Minnesota Department of Aeronautics and reviewed the current scientific literature concerning turbine induced wakes. The two meteorologists were both confident that turbine wakes and turbulence would not have any adverse effects on small aircraft using the Dodge Center Municipal Airport approximately 1.5 miles or more from the existing and proposed turbines. Staff at the Office of Aeronautics in the Minnesota Department of

Transportation does not consider the existing or proposed turbine locations to be an aviation hazard to planes using the Dodge Center Municipal Airport or that turbine induced wakes and turbulence are a significant issue.

EQB staff review of current scientific literature on turbine induced wakes and turbulence indicates that some wake-induced effects may be detected up to 10 rotor diameters downwind. In this case 10 RD is about 2,360 to 2,690 feet. The nearest turbine to the runways at the Dodge Center Airport is approximately 8,000 feet away and nearest proposed turbine is approximately 12,000 feet from the end of the closest runway.

Significant Issues: None.

Other Matters of Interest. Currently there are 41 Micon wind turbines on the Dodge Center site. The existing wind turbine projects (approximately 17) are all separate general purpose limited liability company projects that are less than two megawatts in size and did not require an EQB site permit. The EQB only permits wind projects larger than five megawatts.

Findings of Fact: Most of the findings in the proposed Findings of Fact reflect findings that were made for other LWECS projects. The following outline identifies the major categories of the Findings.

Category	**Findings**
Background and Procedure	(Findings Nos. 1 - 9)
The Permittee	(Findings Nos. 10 - 11)
Project Description	(Findings Nos. 12- 22)
Wind Resource Considerations	(Findings Nos. 23 - 31)
Land Rights and Easement Agreements	(Finding No. 32)
Written Comments and EQB Staff Response	(Findings Nos. 33- 43)
Site Criteria	(Findings Nos. 44- 85)
Site Permit Conditions	(Finding No. 86)

Standard for Permit Issuance: Essentially the test for issuing a site permit for a Large Wind Energy Conversion System is to determine whether the project is compatible with environmental preservation, sustainable development, and the efficient use of resources (Minnesota Statutes section 116C.693). The findings address the pertinent environmental considerations (such as human settlement, noise, community benefits, and surface water). Also, the law allows the Board to place conditions in LWECS permits (Minnesota Statutes section 116C.694d). Except as described above, the conditions in this proposed permit are essentially the same as those conditions included in the other LWECS permits issued by the Board.

Staff Recommendation: The EQB staff recommends issuance of a site permit for G. McNeilus Wind, LLC, for the site requested, with the appropriate conditions contained in the Site Permit. A resolution is included that adopts Findings of Fact, Conclusions, and Order and issues a Site Permit for the project.

Figure 1

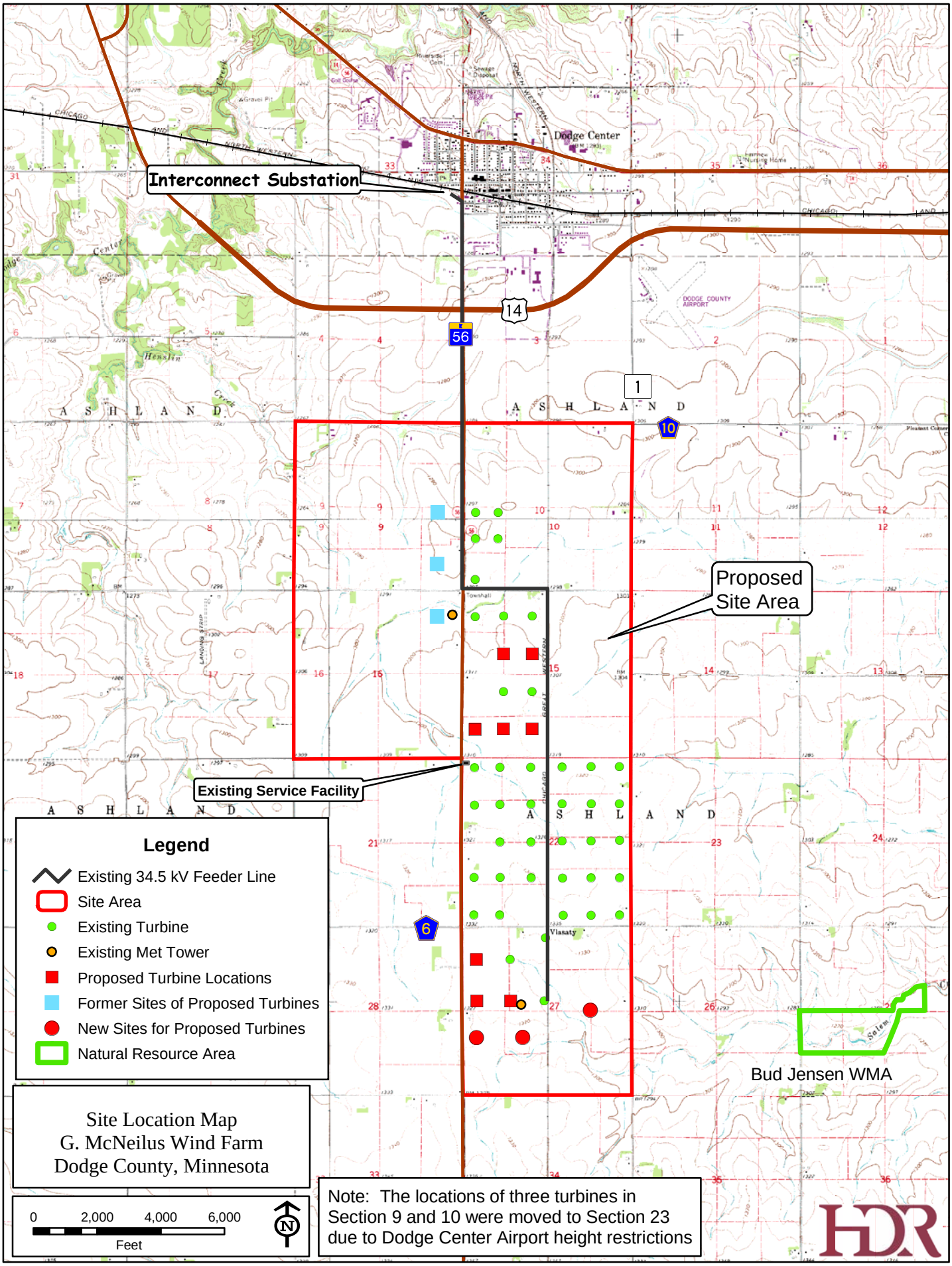
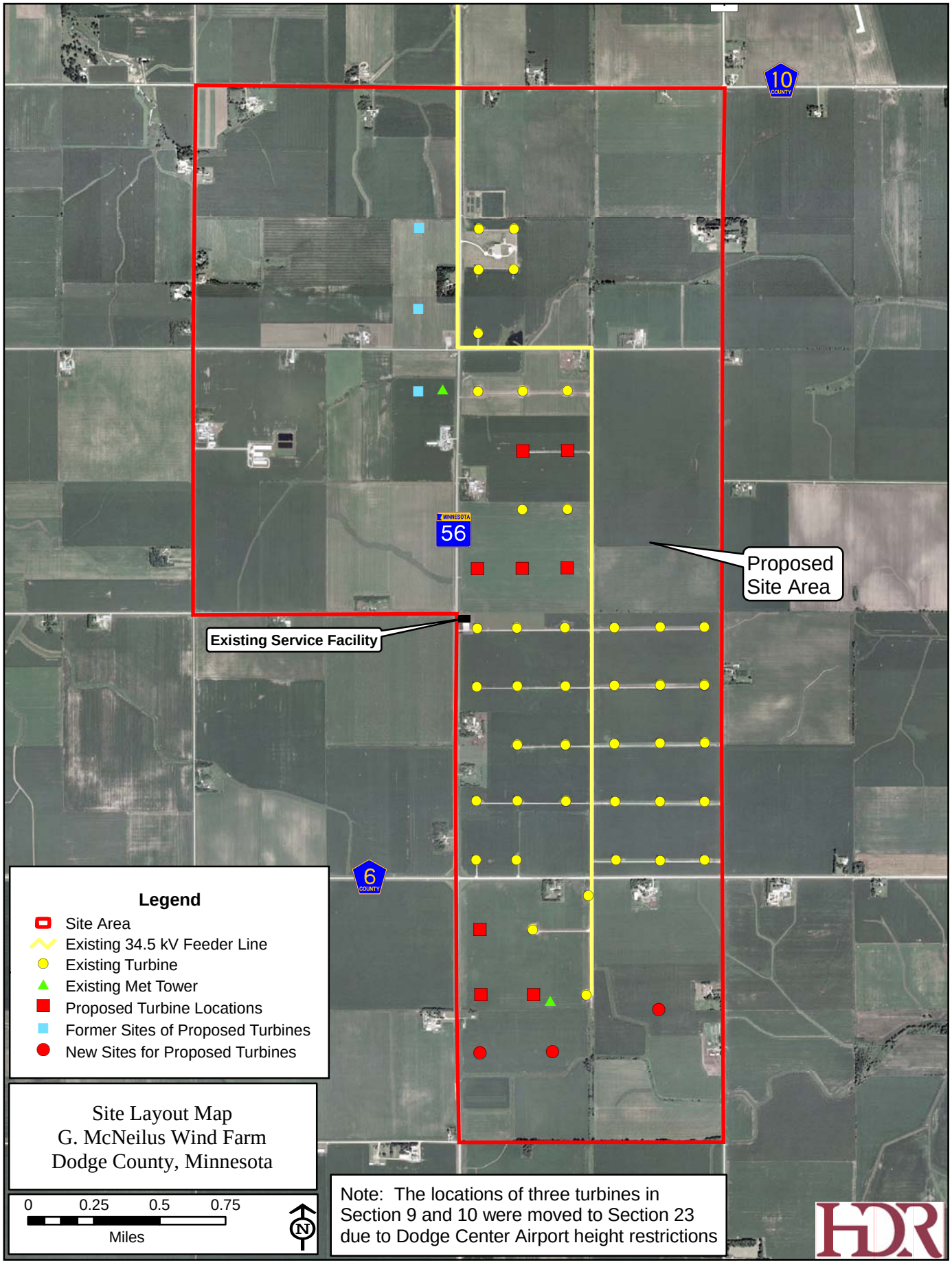

Interconnect Substation
Dodge Center
14
56
1
10
6
Proposed Site Area
Existing Service Facility
Bud Jensen WMA
A S H L A N D
Legend
Existing 34.5 kV Feeder Line
Site Area
Existing Turbine
Existing Met Tower
Proposed Turbine Locations
Former Sites of Proposed Turbines
New Sites for Proposed Turbines
Natural Resource Area
Site Location Map
G. McNeilus Wind Farm
Dodge County, Minnesota
0
2,000
4,000
6,000
Feet
N
Note: The locations of three turbines in Section 9 and 10 were moved to Section 23 due to Dodge Center Airport height restrictions
HDR

Figure 1a


10
COUNTY
MINNESOTA
56
6
COUNTY
Proposed
Site Area
Existing Service Facility
Legend
Site Area
Existing 34.5 kV Feeder Line
Existing Turbine
Existing Met Tower
Proposed Turbine Locations
Former Sites of Proposed Turbines
New Sites for Proposed Turbines
Site Layout Map
G. McNeilus Wind Farm
Dodge County, Minnesota
0
0.25
0.5
0.75
Miles
N
Note: The locations of three turbines in Section 9 and 10 were moved to Section 23 due to Dodge Center Airport height restrictions
HDR